

Application No.: 10/099,923

Docket No.: 102323-0097

REMARKS

This reply is submitted in response to the Office Action dated March 22, 2005. The amendments above and remarks that follow address the points raised in the Office Action and, thereby place this application in condition for allowance.

Claims 16-20 are Allowed

Applicant acknowledges with appreciation the allowance of claims 16-20.

Claims 11-15 are Allowable

The Examiner has indicated that claim 11 would be allowable if rewritten to include the limitations of the base and intervening claims. Accordingly, claim 11 is amended to include these features. Thus claim 11 and claims 12-15, which depend on claim 11, are believed to be in condition for allowance.

Claim Rejections under 35 U.S.C. § 102

Claims 1-10 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Naruse et al., U.S. Patent No. 6,014,408.

Claim 1 is directed to an improvement in a spread spectrum system which processes a plurality of waveforms transmitted by respective users. The improvement comprises two registers associated with i^{th} and k^{th} users each for storing elements of a code sequence associated with one of the i^{th} and k^{th} users. The alignment of the code sequence loaded in one register is shifted relative to that of the other register by m elements. The improvement further comprises two further registers, each for storing mask sequences associated with the code sequences of a respective one of the i^{th} and k^{th} users, such that a mask element is zero or non-zero if a corresponding element of the associated code sequence is zero or non-zero, respectively. The alignment of the mask sequence in one of the further registers is shifted relative to those in the other of the further registers by m elements. A logic unit is coupled to the registers for performing an arithmetical operation on the code sequences and mask sequences to generate, for

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m th transmitted symbol, the (l, k) element of a matrix that represents correlations among the code sequences associated with the respective users.

Unlike claim 1, Naruse is not directed to a spread spectrum system in which correlations among code sequences assigned to pairs of users are utilized to improve processing of waveforms transmitted by those users. In fact, Naruse does not teach or suggest processing codes associated with users to generate pair-wise correlations between them, as recited in claim 1. Nor does it teach or suggest the specific combination of registers and the logic unit called for by claim 1 for computing a matrix representing those correlations. In particular, it does not disclose a logic unit that operates on code sequences and their associated masks, stored in separate registers, to generate such pair-wise correlations. Rather, Naruse is simply directed to generating pseudorandom noise (PN) code using load data for generating the code and mask data for designating the phase of that code.

Hence, not only does Naruse fail to teach the functionality of claim 1, namely calculating a matrix representing correlations among code sequences associated with different users, it also fails to teach the structure of registers and a logic unit recited in claim 1 providing that functionality.

Thus, claim 1 and claims 2-6 which depend either directly or indirectly from claim 1, are patentable over Naruse.

Claim 7 is directed to an improvement of a method of processing code spread spectrum waveforms transmitted by a plurality of users of a spread spectrum system. The improvement comprises generating a matrix for a shift of m chips indicative of correlations among code sequences associated with the users by performing the following steps: (i) for each user, loading elements of a code sequence associated with that user in a register, and loading a mask sequence associated with that sequence in another register such that a mask element is zero or non-zero if a corresponding element of the associated code sequence is zero or non-zero, respectively, and (ii) for any two users l and k , shifting an alignment of the code and mask sequences of the l th user relative to those of the k th user by m elements, and performing an arithmetical operation on the aligned elements to obtain (l, k) element of the matrix.

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The arguments above apply with equal force to establish that claim 7 is also patentable. For example, similar to claim 1, claim 7 recites generating a matrix whose elements represent pair-wise correlations between code sequences associated with different users transmitting waveforms to a spread spectrum system – a feature not taught by Naruse.

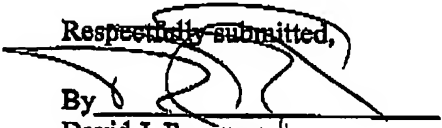
Therefore, claim 7 and claims 8-10, which depend either directly or indirectly from claim 7, distinguish patentably over Naruse.

Conclusion

In view of the above amendments and remarks, Applicant respectfully submits that the claimed invention is patentable. Applicant therefore kindly requests reconsideration and allowance of the pending application.

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Respectfully submitted,

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